

**Notes from Northern Great Plains Network “Vital Signs” Scoping Meeting –
Vegetation at Theodore Roosevelt National Park
August 20, 2003**

Attendees:

Shawn Gray, THRO Biological Technician
Steve Hager, THRO GIS Specialist
Penny Knuckles, THRO Chief of Resources
Mike Oehler, THRO Wildlife Biologist
Chad Prosser, NGP EPMT Team Leader
Amy Symstad, USGS

This scoping meeting was the first of its kind for the preparation of a monitoring plan for vegetation in the 13 parks in the NGPN. Since all but one of the participants in the meeting was familiar with the Vital Signs program, only a brief summary of the goals of the program as a whole was given at the beginning of the meeting. The rest of the time was spent discussing the following three components of the monitoring plan:

1. Review, synthesize, and assess park vegetation, park goals and objectives in regards to the vegetation, and authorities and policies affecting the vegetation and park management thereof.
2. Review, synthesize, and assess vegetation monitoring efforts being conducted by NPS and non-NPS entities in and around Theodore Roosevelt National Park.
3. In detail, review, synthesize, and assess past, present, and potential future stressors affecting park vegetation.

Some information in this document was compiled by Symstad prior to or immediately following the meeting.

1. Review, synthesize, and assess park vegetation, park goals and objectives in regards to the vegetation, and authorities and policies affecting the vegetation and park management thereof.

- Vegetation mapping project and report are complete for THRO and Steve Hager has improved the original GIS data. Amy Symstad will request final report from USGS-BRD.
- Resource Management Plan was completed in 1994, but needs to be rewritten and updated, as it is currently rather vague. Symstad will obtain copy of relevant pages from THRO. Basic statement for management of the park: “protect and interpret the badlands ecosystem surrounding the Little Missouri River and cultural resources resulting from human habitation of the area.”
- When hired, the THRO botanist will begin writing a vegetation management plan.
- A rare plant survey of the park was completed in 1987-1989 and a report filed. None of the plant species at THRO are of global concern (i.e., federally threatened or endangered), and many of the species surveyed in 1987-89 are no longer on the state list of rare plants. Six plant species on the current North Dakota rare species list are known to occur in the park, and

four are known to occur in the vicinity but have not been documented within the park's boundaries.

- The fire management plan is currently being rewritten.
- A park soil survey (at 1:24,000 scale) has been completed and a GIS layer (without metadata) is available.
- Many other documents describing the vegetation of the park should be entered into the I&M program bibliography.

2. Review, synthesize, and assess vegetation monitoring efforts being conducted by NPS and non-NPS entities in and around Theodore Roosevelt National Park.

- NPS Northern Great Plains Exotic Plant Management Team monitors extent and categorical density of select species.
- NPS Northern Great Plains Fire Effects Monitoring Team monitors vegetation (canopy cover, species richness, woody stem density, etc.) and fire behavior in areas that are burned (which so far does not include a large part of the park).
- Numerous studies incorporating a variety of vegetation measurements have been conducted in THRO and plots from some of these studies were permanently marked and/or located with GPS. Plots/transects from these studies were established for specific reasons that may or may not be useful for the Vital Signs monitoring program. Steve Hager as information on plot locations for many of these.
- In 2002 89 modified Whittaker plots were installed under the leadership of biological technician Paula Anderson. Although these were installed specifically for long-term vegetation monitoring at THRO, the specific objectives of the monitoring are not known (Symstad will contact Anderson in the near future). Vegetation data were collected in only a fraction of these plots in 2002, and none in 2003.
- A couple of range evaluation studies have recommended long-term range monitoring.
- Particularly important people to contact regarding specific studies and monitoring at the park include:
 - Jack Butler – USDA Forest Service, Rocky Mountain Research Center
 - Diane Larson – USGS, Northern Prairie Wildlife Research Center
 - Paula Anderson – NPS, Tallgrass Prairie National Preserve
 - other suggestions from park staff would be appreciated
- Vegetation monitoring efforts outside the park were not discussed.
 - Agencies to contact include:
 - USDA Forest Service: Rocky Mountain Research Center; Dakota Prairie Grasslands
 - North Dakota Game and Fish Department, including Natural Heritage program.
 - USGS, Northern Prairie Wildlife Research Center
 - other suggestions?
 - Potential monitoring occurring outside parks:
 - rangeland health
 - woody draw cattle exclosures
 - vegetation around water developments

- Further information would be appreciated from anyone knowledgeable.

3. In detail, review, synthesize, and assess past, present, and potential future stressors affecting park vegetation. Points below are stressors identified in brainstorming session. No effort was made to determine relative importance of these stressors. Other suggestions would be appreciated.

- Invasive plants
 - The EPMT currently treats and monitors leafy spurge, Canada thistle, burdock, knapweed (spotted and Russian), henbane.
 - Others not currently treated and monitored by EPMT include smooth brome, bindweed, Japanese brome, cheat grass, sweet clover, crested wheatgrass, salt cedar
- Lack of fire/disturbed fire regime (possibly affecting woody encroachment and exotic plants)
- Disturbed grazing regimes, including non-native grazers (horses)
- Air quality degradation caused by: Interstate 90 and rest area, local and regional coal, oil, and gas extraction
- Declines in water quality (pesticide runoff from agriculture and golf course near South Unit)
- Changes in water quantity (water rights for park not established; golf course near South Unit will use a lot of Little Missouri River water) and flow regimes
- Oil spills, drilling muds, and brine
- Noise
- Climate change
- Chemical and biological control agents of invasive species
- Land use/demographic change outside of park (large ranches are being subdivided; trend towards less ranching, more recreational use)
- Unauthorized use (off-road vehicle use, herbicide spills)
- Habitat fragmentation due to roads and trails = Park development and maintenance thereof
- Visitor use: trails, demand for access and development, trail ride concession
- Park management and operations (mowing, etc.) and vagaries thereof subject to changes in personnel.
- Inside park water developments affect hydrologic regimes, vegetation, grazing patterns
- Gypsy moth and other exotic animals (other suggestions?)
- Diseases (suggestions?)

4. Other topics discussed

- The veg mapping report may address this in more detail (as may a couple of documents about the vegetation communities of THRO completed in the mid-1980's), but ideas for aspects of vegetation that are of special concern or interest were:
 - vestigial/remnant aspen communities
 - ponderosa pine (at edge of range)
 - prairie dog towns

- riparian areas
 - wetlands (many of which are too small to show up in veg mapping)
 - hardwood draws
 - grassland communities
 - state-listed species (Symstad will consult with ND Natural Heritage program regarding concern level of these species.)
- Potential vegetation-related vital signs
 - belowground aspects of vegetation (root mass?)
 - mycorrhizae
 - nutrient dynamics
 - soil something (archive soil cores?)
 - soil salinity
 - insects
- Is archiving samples for later analysis/consultation an option?
- The intense sampling done by the LTEM program may be more than Vital Signs can afford.